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ABSTRACT

An academic characteristics profile database for freshmen at the Pennsylvania State University is briefly described. The database was constructed through the Freshman Testing, Counseling, and Advising Program (FTCAP), which is designed to assist new freshmen in evaluating their educational plans by providing them, prior to initial registration, a comprehensive program of testing and individualized counseling and advising. The results of the testing segment of the FTCAP are used for counseling and advising, placement, and identification of basic skills weaknesses. Data sources for the program include the Educational Planning Survey and the Profile of Academic Abilities. The results of testing, high school records, and Scholastic Aptitude Test scores are developed into an individual Profile of Academic Abilities. The Educational Planning Survey provides information about the student's educational background and academic interests. All the information is used to relate students' academic abilities and preparedness to their educational goals. Some findings are provided concerning: student expectations concerning grades, study skills and study hours, choice of major, and choice of a college/university. (SW)

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PROFILING FRESHMAN ACADEMIC CHARACTERISTICS

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Preliminary work on developing the dimensions of a freshman academic characteristics profile was begun at Penn State in 1977. This developmental work centered on academic characteristics of baccalaureate students enrolled at the University Park Campus of Penn State. Less than one thousand students were involved in the preliminary analysis. In 1981, a pilot project was begun that included baccalaureate students enrolled in all ten of the University's Colleges located at University Park. After 1981, the project expanded to include both 2-year and 4-year freshmen at eighteen additional campuses in the Penn State system. With more than 10,000 freshmen entering Penn State each year, the total number of students now in the academic characteristics profile data base is more than 40,000.

Data Source

The mechanism through which the academic characteristics profile data base has been constructed at Penn State is the Freshman Testing, Counseling and Advising Program (FTCAP) conducted by the Division of Undergraduate Studies. The FTCAP has been offered to students for twenty-nine years; more than 90% of all entering freshmen participate in the program.

There are two important sources of data built into the FTCAP that contribute to the freshman characteristics project: 1) The Educational Planning Survey; and, 2) The Profile of Academic Abilities.

The data base then, consists of descriptors that include high school g.p.a., SAT scores, class rank, English, math and chemistry placement, parents' educational level, study hours questions, expected college grades, study skills report, reactions to high school courses, choices of majors, educational planning factors related to major choices, and reasons for attending Penn State. Taken together, these descriptors provide a powerful mechanism for relating students' academic abilities and preparedness to their educational goals.

Overview of the FTCAP

The primary purpose of the FTCAP is to assist new freshmen in evaluating their educational plans by providing them, prior to initial registration, with a comprehensive program of testing and individualized counseling and advising.

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The results of the testing segment of the FTCAP serve several purposes:

Counseling and Advising - The results provide a sound base for specific information on which to evaluate educational plans by indicating to students and academic advisers where the student stands in various academic areas in relation to other Penn State freshmen, how well they can probably expect to achieve academically at Penn State, and in which types of educational programs they would probably do well.

Placement - The results are used to determine appropriate starting levels in English, mathematics, and chemistry course sequences.

Basic Skills - The results are used to identify any weaknesses in English, reading and/or basic algebra.

The results of the testing segment of the FTCAP combined with the high school record and SAT scores are developed for each student into an individual Profile of Academic Abilities.

The Educational Planning Survey provides information about students' educational backgrounds and academic interests. This information enables a Division of Undergraduate Studies adviser during a day of counseling and advising to discuss students' educational plans.

Data Collection, Storage and Uses

Information from both The Profile of Academic Abilities and The Educational Planning Survey is coded and read onto a computer tape. A computer program has been written to extract descriptive data in a variety of formats, ranging from individual student data to college, campus and all-University distributions. Comparisons within and across items and distributions is possible.

Currently, we are studying potential applications of the data in: student-related institutional research; recruiting; retention; advising; institutional planning and academic service/support programs.

What The Data Can Tell Us

It would be impossible to provide in this summary of the project, one complete distribution of the data for one freshman class: the data are too voluminous and may perhaps apply uniquely to Penn State, although the interest that this project has generated nationally leads us to believe that our analysis of student academic characteristics may provide a useful model for many institutions, 2-year and 4-year; small and large.

1. Self-Reported vs. Institutionally Generated Data

The Profile of Academic Abilities contains no self-reported student data. In simple comparisons between self-reported and officially generated data we found student self-reports of high school g.p.a. and SAT scores to be inflated and consequently, of little use for academic reports, advising or institutional planning. The Profile of Academic Abilities provides us with accurate high school g.p.a. and SAT scores and has the further advantage of including placement test information as well as other relevant academic distributions.

The Educational Planning Survey consists largely of self-reported educational planning information, which freshmen are told, will be discussed during their individual educational counseling interview on the counseling and advising day. Because emphasis is placed on the individual interview, students know their responses are not only important, but also that they will be used in the interview.

2. How Realistic Are Freshmen About The College Experience?

Although beginning college freshmen recognize that they are entering an environment different from high school, they are generally uninformed about the extent of the difference.

Expected vs. Earned Grades

Our data indicate that 96% of all freshmen expect a B average or better at the end of the freshman year, although some of these students had not previously earned a B average in high school. On this item in particular, 2-year students were much more unrealistic than 4-year students and less well-prepared students had the same high expectations that superior students reported.

Study Skills

Students generally perceived their study skills to be in good shape as they approached their first year in college. Reading speed was the one area in which students expressed the greatest doubt about their abilities. In a small follow-up study conducted 6 months to one year after matriculation, a group of students was asked to complete again an Educational Planning Survey. They had the opportunity to compare their original responses with responses after matriculation and as a group reported that as entering freshmen, they had overestimated all of their study skills. Specifically, they had not expected the quantity of work (especially reading) assigned and they reported that their comprehension, note-taking, and organizational skills could have been better.

Study Hours

Not surprisingly, very few students reported significant hours of study in high school. Although students did recognize that increased study hours would be necessary in college, still, few students envisioned college as a full-time job. The majority of freshmen thought that college study might require up to twenty hours per week. This was another area where the follow-up group expressed surprise at their earlier naivete and revised upward, their college study hours. This item also relates to expected g.p.a. and choice of major in determining how unrealistic freshmen might be.

Knowledge and Participation

Career pressures exerted on students by their parents, peers, the media and perhaps also encountered to some extent in secondary schools are very apparent and are often reflected in a student's choice of major. However, few students report having a great deal of knowledge about their major choices and few students have participated in activities related to their choices. They are not aware of the overall curriculum in which they will be studying; they have not thought about the courses that they will be taking.

This is particularly evident, for example, among prospective engineering students who are considering the field because they perceive assured job placement or a comfortable, financially rewarding career.

Taken together, these items when weighed against academic abilities and choice of major provide indicators of how realistic are students' college plans.

3. Certainty About College Plans

It has been reported that approximately 50% of college students will change majors at least once in their college careers. Our academic characteristics study includes items pertaining to both certainty and potential change of major. We found that nearly 80% of entering 4-year freshmen expressed uncertainty about their choice of major and 82% expected to change majors at least once.

The time period over which a student has thought about a major prior to entering college also underscores the high level of uncertainty among freshmen as well as the contention that students are unrealistic. The majority (76%) of students beginning the freshman year had made a decision about a major during the senior year in high school, or at the time of applying to the university, or were still undecided about any choice.

4. Choice of Major

It is worthwhile to compare choice of major to almost all items in the characteristics profile. The relationship between choice of major and all aspects (high school g.p.a., SAT scores, placement scores) of the Profile of Academic Abilities is very telling, especially so for students considering curricula involving sequences of higher mathematics and science courses.

Dimensions of the Educational Planning Survey of greatest interest for comparison are: certainty, knowledge, activities, time, study hours, chances of changing major and several other items not discussed here, namely adviser's judgments concerning a student's educational plans and a system of weighting the degree of interest that students express relative to their choices.

Of greatest initial interest to faculty, academic administrators, and students alike, however, is a ranking of the frequency of freshman choices of majors. Although Penn State offers students 170 choices of majors, the characteristics profile reveals that the majority (66%) of entering freshmen cluster themselves in only 20 majors, and it comes as no surprise that professional and career related programs dominate the top 20 list.

In 1984, for example, the top 20 list for 4-year freshmen (all campuses and colleges combined) included:

<u>Rank</u>	<u>Major</u>	<u>Rank</u>	<u>Major</u>
1.	Computer Science	11.	Mathematics
2.	Electrical Engineering	12.	Finance
3.	Accounting	13.	Chemical Engineering
4.	Management	14.	Division of Undergraduate Studies (undecided)
5.	Mechanical Engineering	15.	Civil Engineering
6.	Aerospace Engineering	16.	Premedicine
7.	Psychology	17.	Chemistry
8.	Marketing	18.	Secondary Education
9.	Biology	19.	Journalism
10.	Prelaw	20.	Advertising

This clustering of choices demonstrates how narrow is the range of freshman thinking about educational plans; additionally, it says something about how high school seniors view higher education. For faculty and administration this clustering of interests is a signal of potential heavy course enrollments, demand on facilities and resources, and potential flow of students into a major.

However, it is important to note the Division of Undergraduate Studies (DUS), in fourteenth place on the list. DUS is Penn State's enrollment and advising unit for exploratory or undecided students; it is not a major, nor does it offer courses or grant degrees. The presence of DUS on the top 20 list is yet another indicator of how uncertain are beginning freshmen.

The choice of major item whether combined with other variables or taken alone can contribute to a variety of college efforts, among them: recruiting, admissions, advising, and planning. Apart from these institutional concerns, however, freshman choice of major provides a snapshot of students' academic hopes, plans, and goals.

5. Why Do Students Go To College? Why Do They Choose Your Particular Institution?

Responses to these items are certain to vary by institution. In general though, our data are consistent with other studies that indicate high student interest in professional/career/job related majors. Although career goals are prominent in students' minds they are not the only reasons given for deciding to attend a particular college; Penn State freshman rank "good academic reputation" first among their reasons for attending this institution. There has been no change in this statistic over the several years that this project has been conducted. A sample of other reasons that students might list as important in their choice of your institution includes: unique academic programs, the size of the institution, reputation of the institution in their particular field of intended study.

In addition to providing an institution with a view of how it is perceived by its students, these items have broad implications for a variety of institutional planning efforts.

Conclusion

Profiling freshman academic characteristics can be a valuable component of an institution's self-study efforts. To have self-reported and institutionally generated data that are reliable and immediate provides institutions with a tool for examining and perhaps changing goals, programs and services--from the delivery of relevant academic and student services to long range planning involving faculty and facilities development. In this era of uncertainty, the more we know about those selecting our colleges and universities, the better we will be at planning for the future of our institutions.